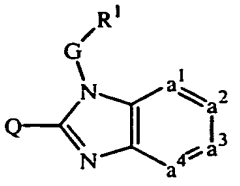
Claims

1. Use of a compound for the manufacture of a medicament for the treatment of viral infections, wherein the compound is a compound of formula



(I)

a prodrug, *N*-oxide, addition salt, quaternary amine, metal complex or stereochemically isomeric form thereof, wherein

$-a^1=a^2-a^3=a^4-$ represents a bivalent radical of formula

-CH=CH-CH=CH- (a-1);

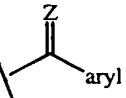
-N=CH-CH=CH- (a-2);

-CH=N-CH=CH- (a-3);

-CH=CH-N=CH- (a-4); or

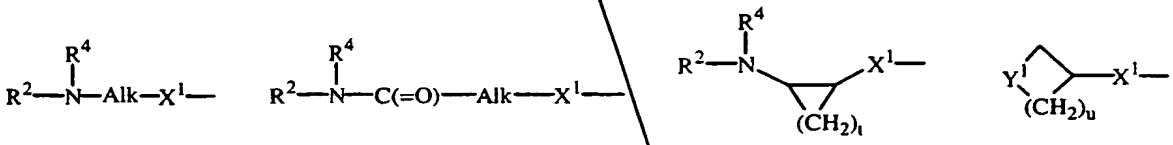
-CH=CH-CH=N- (a-5);

wherein each hydrogen atom in the radicals (a-1), (a-2), (a-3), (a-4) and (a-5) may optionally be replaced by halo, C_{1-6}alkyl, nitro, amino, hydroxy, C_{1-6}alkyloxy, polyhaloC_{1-6}alkyl, carboxyl, aminoC_{1-6}alkyl, mono- or di(C_{1-4}alkyl)aminoC_{1-6}alkyl, C_{1-6}alkyloxycarbonyl, hydroxyC_{1-6}alkyl, or a radical of formula

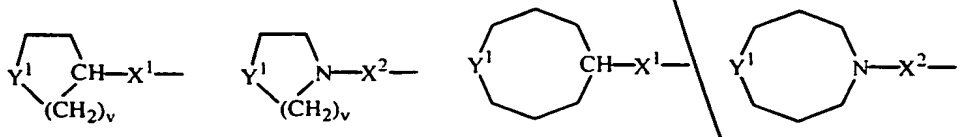


wherein =Z is =O, =CH-C(=O)-$NR^{5a}R^{5b}$, $=CH_2$, =CH-C_{1-6}alkyl, =N-OH or =N-O-C_{1-6}alkyl;

Q is a radical of formula



(b-1) (b-2) (b-3) (b-4)



(b-5) (b-6) (b-7) (b-8)

wherein Alk is C_{1-6}alkanediyl;

Y^1 is a bivalent radical of formula $-NR^2-$ or $-CH(NR^2R^4)-$;

X^1 is NR^4, S, S(=O), $S(=O)_2$, O, CH_2, C(=O), $C(=CH_2)$, CH(OH), $CH(CH_3)$, $CH(OCH_3)$, $CH(SCH_3)$, $CH(NR^{5a}R^{5b})$, CH_2-NR^4 or NR^4-CH_2;

X^2 is a direct bond, CH_2, C(=O), NR^4, C_{1-4}alkyl-NR^4, NR^4-C_{1-4}alkyl;

t is 2, 3, 4 or 5;

u is 1, 2, 3, 4 or 5;

v is 2 or 3; and

whereby each hydrogen atom in Alk and the carbocycles and the heterocycles defined in radicals (b-3), (b-4), (b-5), (b-6), (b-7) and (b-8) may optionally be replaced by R^3; with the proviso that when R^3 is hydroxy or C_{1-6}alkyloxy, then R^3 can not replace a hydrogen atom in the α position relative to a nitrogen atom;

G is a direct bond or C_{1-10}alkanediyl;

R^1 is a monocyclic heterocycle selected from piperidinyl, piperazinyl, pyridyl, pyrazinyl, pyridazinyl, pyrimidinyl, pyrrolyl, furanyl, tetrahydrofuranyl, thienyl, oxazolyl, thiazolyl, imidazolyl, pyrazolyl, isoxazolyl, oxadiazolyl, and isothiazolyl; and each heterocycle may optionally be substituted with 1 or where possible more, such as 2, 3 or 4, substituents selected from halo, hydroxy, amino, cyano, carboxy, C_{1-6}alkyl, C_{1-6}alkyloxy, C_{1-6}alkylthio, C_{1-6}alkyloxyC_{1-6}alkyl, aryl, arylC_{1-6}alkyl, arylC_{1-6}alkyloxy, hydroxyC_{1-6}alkyl, mono-or di(C_{1-6}alkyl)amino, mono-or di(C_{1-6}alkyl)aminoC_{1-6}alkyl, polyhaloC_{1-6}alkyl, C_{1-6}alkylcarbonylamino, C_{1-6}alkyl-SO_2-NR^{5c}-, aryl-SO_2-NR^{5c}-, C_{1-6}alkyloxycarbonyl, -C(=O)-$NR^{5c}R^{5d}$, HO(-CH_2-CH_2-O)$_n$-, halo(-CH_2-CH_2-O)$_n$-, C_{1-6}alkyloxy(-CH_2-CH_2-O)$_n$-, arylC_{1-6}alkyloxy(-CH_2-CH_2-O)$_n$- and mono-or di(C_{1-6}alkyl)amino(-CH_2-CH_2-O)$_n$-;

each n independently is 1, 2, 3 or 4;

R^2 is hydrogen, formyl, C_{1-6}alkylcarbonyl, Hetcarbonyl, pyrrolidinyl, piperidinyl, homopiperidinyl, C_{3-7}cycloalkyl substituted with $N(R^6)_2$, or C_{1-10}alkyl substituted with $N(R^6)_2$ and optionally with a second, third or fourth substituent selected from amino, hydroxy, C_{3-7}cycloalkyl, C_{2-5}alkanediyl, piperidinyl, mono-or di(C_{1-6}alkyl)amino, C_{1-6}alkyloxycarbonylamino, aryl and aryloxy;

R^3 is hydrogen, hydroxy, C_{1-6}alkyl, C_{1-6}alkyloxy, arylC_{1-6}alkyl or arylC_{1-6}alkyloxy;

R^4 is hydrogen, C_{1-6}alkyl or arylC_{1-6}alkyl;

R^{5a}, R^{5b}, R^{5c} and R^{5d} each independently are hydrogen or C_{1-6}alkyl; or

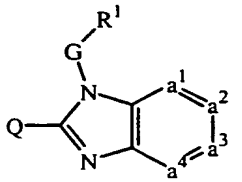
R^{5a} and R^{5b}, or R^{5c} and R^{5d} taken together form a bivalent radical of formula -$(CH_2)_s$- wherein s is 4 or 5;

R^6 is hydrogen, C_{1-4}alkyl, formyl, hydroxyC_{1-6}alkyl, C_{1-6}alkylcarbonyl or C_{1-6}alkyloxycarbonyl;

aryl is phenyl or phenyl substituted with 1 or more, such as 2, 3 or 4, substituents selected from halo, hydroxy, C_{1-6}alkyl, hydroxyC_{1-6}alkyl, polyhaloC_{1-6}alkyl, and C_{1-6}alkyloxy;

Het is pyridyl, pyrimidinyl, pyrazinyl, pyridazinyl.

2. A compound of formula (I')



(I')

a prodrug, *N*-oxide, addition salt, quaternary amine, metal complex or stereochemically isomeric form thereof, wherein

$-a^1=a^2-a^3=a^4-$ represents a radical of formula

-CH=CH-CH=CH- (a-1);

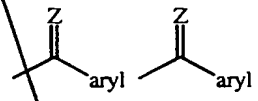
-N=CH-CH=CH- (a-2);

-CH=N-CH=CH- (a-3);

-CH=CH-N=CH- (a-4); or

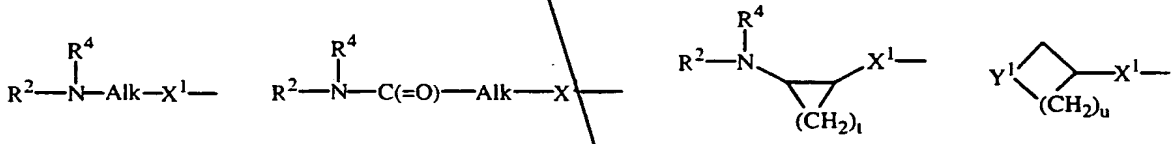
-CH=CH-CH=N- (a-5);

wherein each hydrogen atom in the radicals (a-1), (a-2), (a-3), (a-4) and (a-5) may optionally be replaced by halo, C_{1-6}alkyl, nitro, amino, hydroxy, C_{1-6}alkyloxy, polyhaloC_{1-6}alkyl, carboxyl, aminoC_{1-6}alkyl, mono- or di(C_{1-4}alkyl)aminoC_{1-6}alkyl, C_{1-6}alkyloxycarbonyl, hydroxyC_{1-6}alkyl, or a radical of formula

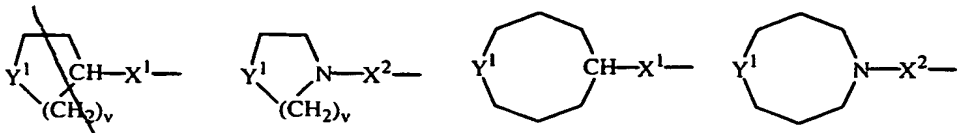


wherein =Z is =O, =CH-C(=O)-$NR^{5a}R^{5b}$, $=CH_2$, =CH-C_{1-6}alkyl, =N-OH or =N-O-C_{1-6}alkyl;

Q is a radical of formula



(b-1) (b-2) (b-3) (b-4)



(b-5) (b-6) (b-7) (b-8)

wherein Alk is C_{1-6}alkanediyl;

Y^1 is a bivalent radical of formula $-NR^2-$ or $-CH(NR^2R^4)-$;

X^1 is NR^4, S, S(=O), $S(=O)_2$, O, CH_2, C(=O), $C(=CH_2)$, CH(OH), $CH(CH_3)$, $CH(OCH_3)$, $CH(SCH_3)$, $CH(NR^{5a}R^{5b})$, CH_2-NR^4 or NR^4-CH_2;

X^2 is a direct bond, CH_2, C(=O), NR^4, C_{1-4}alkyl-NR^4, NR^4-C_{1-4}alkyl;

t is 2, 3, 4 or 5;

u is 1, 2, 3, 4 or 5;

v is 2 or 3; and

whereby each hydrogen atom in Alk and the carbocycles and the heterocycles defined in radicals (b-3), (b-4), (b-5), (b-6), (b-7) and (b-8) may optionally be replaced by R^3; with the proviso that when R^3 is hydroxy or C_{1-6}alkyloxy, then R^3 can not replace a hydrogen atom in the α position relative to a nitrogen atom;

G is a direct bond or C_{1-10}alkanediyl;

R^1 is a monocyclic heterocycle selected from pyridyl, pyrazinyl, pyridazinyl, pyrimidinyl, pyrrolyl, imidazolyl and pyrazolyl; and each heterocycle may optionally be substituted with 1 or where possible more, such as 2, 3 or 4, substituents selected from halo, hydroxy, amino, cyano, carboxy, C_{1-6}alkyl, C_{1-6}alkyloxy, C_{1-6}alkylthio, C_{1-6}alkyloxyC_{1-6}alkyl, aryl, arylC_{1-6}alkyl, arylC_{1-6}alkyloxy, hydroxyC_{1-6}alkyl, mono-or di(C_{1-6}alkyl)amino, mono-or di(C_{1-6}alkyl)aminoC_{1-6}alkyl, polyhaloC_{1-6}alkyl, C_{1-6}alkyl-carbonylamino, C_{1-6}alkyl-SO_2-NR^{5c}-, aryl-SO_2-NR^{5c}-, C_{1-6}alkyloxycarbonyl, -C(=O)-$NR^{5c}R^{5d}$, $HO(-CH_2-CH_2-O)_n$-, halo$(-CH_2-CH_2-O)_n$-, C_{1-6}alkyloxy$(-CH_2-CH_2-O)_n$-, arylC_{1-6}alkyloxy$(-CH_2-CH_2-O)_n$- and mono-or di(C_{1-6}alkyl)amino$(-CH_2-CH_2-O)_n$-;

each n independently is 1, 2, 3 or 4;

R^2 is hydrogen, formyl, pyrrolidinyl, piperidinyl, homopiperidinyl, C_{3-7}cycloalkyl substituted with $N(R^6)_2$, or C_{1-10}alkyl substituted with $N(R^6)_2$ and optionally with a second, third or fourth substituent selected from amino, hydroxy, C_{3-7}cycloalkyl, C_{2-5}alkanediyl, piperidinyl, mono-or di(C_{1-6}alkyl)amino, C_{1-6}alkyloxycarbonylamino, aryl and aryloxy;

R^3 is hydrogen, hydroxy, C_{1-6}alkyl, C_{1-6}alkyloxy, arylC_{1-6}alkyl or arylC_{1-6}alkyloxy;

R^4 is hydrogen, C_{1-6}alkyl or arylC_{1-6}alkyl;

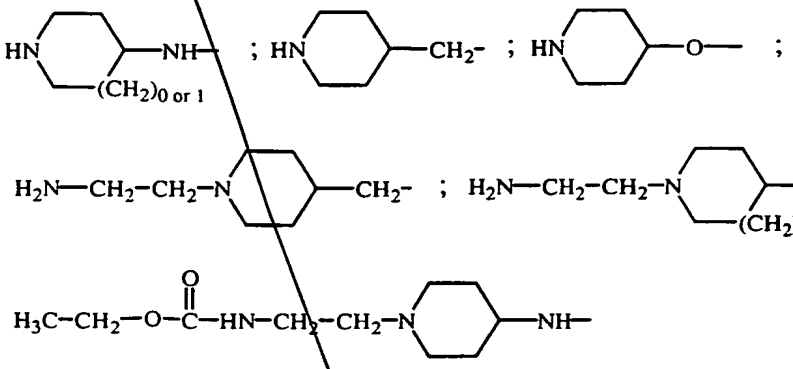
R^{5a}, R^{5b}, R^{5c} and R^{5d} each independently are hydrogen or C_{1-6}alkyl; or

R^{5a} and R^{5b}, or R^{5c} and R^{5d} taken together form a bivalent radical of formula $-(CH_2)_s-$ wherein s is 4 or 5;

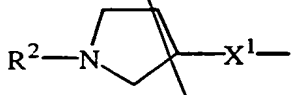
R^6 is hydrogen, C_{1-4}alkyl, formyl, hydroxyC_{1-6}alkyl, C_{1-6}alkylcarbonyl or C_{1-6}alkyloxycarbonyl;

aryl is phenyl or phenyl substituted with 1 or more, such as 2, 3 or 4, substituents selected from halo, hydroxy, C_{1-6}alkyl, hydroxyC_{1-6}alkyl, polyhaloC_{1-6}alkyl, and C_{1-6}alkyloxy;

provided that when G is methylene, and R^1 is 2-pyridyl, 3-pyridyl, 6-methyl-2-pyridyl, 2-pyrazinyl or 5-methyl-imidazol-4-yl, and $-a^1=a^2-a^3=a^4-$ is $-CH=CH-CH=CH-$ or $-N=CH-CH=CH-$, then Q is other than

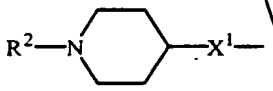


3. A compound as claimed in claim 2 wherein the following restrictions apply :

when Q is 

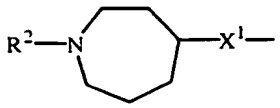
wherein X^1 is NR^4, O, S, S(=O), $S(=O)_2$, CH_2, C(=O), $C(=CH_2)$ or $CH(CH_3)$, then R^1 is other than pyridyl, pyridyl substituted with C_{1-6}alkyl, pyrimidinyl, pyrazinyl, imidazolyl and imidazolyl substituted with C_{1-6}alkyl.

4. A compound as claimed in claim 2 wherein the following restrictions apply :

when Q is 

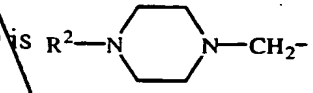
wherein X^1 is NR^4, O, S, S(=O), $S(=O)_2$, CH_2, C(=O), $C(=CH_2)$ or $CH(CH_3)$, then R^1 is other than pyridyl, pyridyl substituted with C_{1-6}alkyl, pyridyl substituted with 1 or 2 C_{1-6}alkyloxy, pyrazinyl, pyrrolyl, pyrrolyl substituted with C_{1-6}alkyl, imidazolyl and imidazolyl substituted with C_{1-6}alkyl.

5. A compound as claimed in claim 2 wherein the following restrictions apply :

when Q is 

wherein X^1 is NR^4, O, S, S(=O), $S(=O)_2$, CH_2, C(=O), $C(=CH_2)$ or $CH(CH_3)$, then R^1 is other than pyridyl, pyridyl substituted with C_{1-6}alkyl, pyrimidinyl, pyrazinyl, imidazolyl and imidazolyl substituted with C_{1-6}alkyl.

6. A compound as claimed in claim 2 wherein the following restrictions apply :

when Q is 

then R^1 is other than pyridyl, pyrimidinyl, pyrazinyl, imidazolyl and imidazolyl substituted with C_{1-6}alkyl.

7. A compound as claimed in claim 2 wherein the following restrictions apply :

when Q is 

wherein X^2 is CH_2 or a direct bond, then R^1 is other than pyridyl, pyridyl substituted with C_{1-6}alkyl, pyrimidinyl, pyrazinyl, imidazolyl and imidazolyl substituted with C_{1-6}alkyl.

8. A compound as claimed in claim 2 wherein the compound is selected from (±)-2-[[2-[[1-(2-amino-3-methylbutyl)-4-piperidinyl]amino]-7-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride monohydrate; 2-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino]-*1H*-benzimidazol-1-yl]methyl-3-pyridinol; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-6-chloro-1-[(1,4-dimethyl-*1H*-imidazol-5-yl)methyl]-*1H*-benzimidazol-2-amine monohydrate; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-6-chloro-1-[(6-methyl-2-pyridinyl)methyl]-*1H*-benzimidazol-2-amine; (±)-2-[[2-[(3-amino-2-hydroxypropyl)amino]-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[[3-(2-ethoxyethoxy)-6-methyl-2-pyridinyl]methyl]-*1H*-benzimidazol-2-amine tetrahydrochloride dihydrate; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-1-[(2-chloro-1,4-dimethyl-*1H*-imidazol-5-yl)methyl]-*1H*-benzimidazol-2-amine; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-6-chloro-1-[(2-chloro-1,4-dimethyl-*1H*-imidazol-5-yl)methyl]-*1H*-benzimidazol-2-amine; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-6-methyl-1-[(6-methyl-2-pyridinyl)methyl]-*1H*-benzimidazol-2-amine; (±)-*N*-[1-(2-aminopropyl)-4-piperidinyl]-1-[(3,5,6-trimethylpyrazinyl)methyl]-*1H*-benzimidazol-2-amine tetrahydrochloride trihydrate; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-1-[(3,5,6-trimethylpyrazinyl)methyl]-*1H*-benzimidazol-2-amine; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[[3-(2-chloroethoxy)-

6-methyl-2-pyridinyl]methyl]-*1H*-benzimidazol-2-amine trihydrochloride dihydrate; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-1-[3-amino-2-pyridinyl)methyl]-*1H*-benzimidazol-2-amine tetrahydrochloride trihydrate; 2-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino]-4-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride; (±)-2-[[2-[[1-(2-amino-3-methylbutyl)-4-piperidinyl]amino]-7-methyl-3*H*-imidazo[4,5-b]pyridin-3-yl]methyl]-6-methyl-3-pyridinol; 2-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino]-6-chloro-4-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride 2-propanolate (1:1); (±)-2-[[2-[[1-(2-amino-3-methylbutyl)-4-piperidinyl]amino]-4-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol; (±)-2-[[2-[[1-(2-aminopropyl)-4-piperidinyl]amino]-4-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride trihydrate; 2-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino]-7-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride dihydrate; 2-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino]-6-bromo-4-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride; 2-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino]-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride monohydrate; (±)-2-[[2-[[1-(2-amino-3-methylbutyl)-4-piperidinyl]amino]-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol; (±)-*N*-[1-(2-amino-3-methylbutyl)-4-piperidinyl]-4-methyl-1-[(6-methyl-2-pyridinyl)methyl]-*1H*-benzimidazol-2-amine;
a prodrug, *N*-oxide, addition salt, quaternary amine, metal complex and stereochemically isomeric form thereof.

9. A compound selected from
2-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino]-5-chloro-7-methyl-*1H*-benzimidazol-1-yl]methyl]-6-methyl-3-pyridinol tetrahydrochloride tetrahydrate; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(2,4-dimethyl-5-oxazolyl)methyl]-*1H*-benzimidazol-2-amine; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(2,5-dimethyl-4-oxazolyl)methyl]-*1H*-benzimidazol-2-amine trihydrochloride monohydrate; 4-[[3-[[5-(methoxymethyl)-2-furanyl]methyl]-3*H*-imidazo[4,5-b]pyridine-2-yl]methyl]-1-piperidineetanamine; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(5-methyl-3-isoxazolyl)methyl]-*1H*-benzimidazol-2-amine trihydrochloride monohydrate; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(2-methyl-5-oxazolyl)methyl]-*1H*-benzimidazol-2-amine monohydrate; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(2-methyl-5-oxazolyl)methyl]-*1H*-benzimidazol-2-amine trihydrochloride monohydrate; N-[1-(2-aminoethyl)-4-piperidinyl]-3-[(2,4-dimethyl-5-oxazolyl)methyl]-3H-imidazo[4,5-b]pyridin-2-amine; 4-[[3-[(2-methyl-5-

Sub A1

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oxazolyl)methyl]-3H-imidazo[4,5-b]pyridin-2-yl]methyl]-1-piperazineethanamine; N-[1-(2-aminoethyl)-4-piperidinyl]-1-(4-thiazolylmethyl)-*1H*-benzimidazol-2-amine; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(5-phenyl-1,2,4-oxadiazol-3-yl)methyl]-*1H*-benzimidazol-2-amine trihydrochloride; 5-[[2-[[1-(2-aminoethyl)-4-piperidinyl]amino-*1H*-benzimidazol-1-yl]methyl-2-oxazolemethanol tetrahydrochloride dihydrate; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(3-methyl-5-isoxazolyl)methyl]-*1H*-benzimidazol-2-amine trihydrochloride monohydrate; 4-[[1-[[2-(dimethylamino)-4-thiazolyl]methyl]-*1H*-benzimidazol-2-yl]methyl]-1-piperidineethanamine tetrahydrochloride monohydrate 2-propanolate (1:1); ethyl 5-[[2-[[1-[2-[[(1,1-dimethylethoxy)carbonyl]amino]ethyl]-4-piperidinyl]amino]-*1H*-benzimidazol-1-yl]methyl]-2-methyl-4-oxazolecarboxylate; 4-[[1-[(2-methyl-4-thiazolyl)methyl]-*1H*-benzimidazol-2-yl]methyl]-1-piperidineethanamine; N-[1-(2-aminoethyl)-4-piperidinyl]-1-[(2-methyl-3-furanyl)methyl]-*1H*-benzimidazol-2-amine; ethyl 4-[[3-[(3-hydroxy-6-methyl-2-pyridinyl)methyl]-7-methyl-3H-imidazo[4,5-b]pyridine-2-yl]amino]-1-piperidinecarboxylate; 1,1-dimethylethyl 4-[[1-[[3-[2-(dimethylamino)ethoxy]-6-methyl-2-pyridinyl]methyl]-*1H*-benzimidazol-2-yl]amino-1-piperidinecarboxylate; ethyl 4-[[1-[(3-amino-2-pyridinyl)methyl]-*1H*-benzimidazol-2-yl]amino]-1-piperidinecarboxylate; N-[1-(6-methyl-2-pyridinyl)-*1H*-benzimidazol-2-yl]-1-(3-pyridinylcarbonyl)-4-piperidinamine;

a prodrug, *N*-oxide, addition salt, quaternary amine, metal complex and stereochemically isomeric form thereof.

10. A compound as claimed in anyone of claims 2 to 9 for use as a medicine.

11. Use of a compound as claimed in claim 9 for the manufacture of a medicament for the treatment of viral infections.

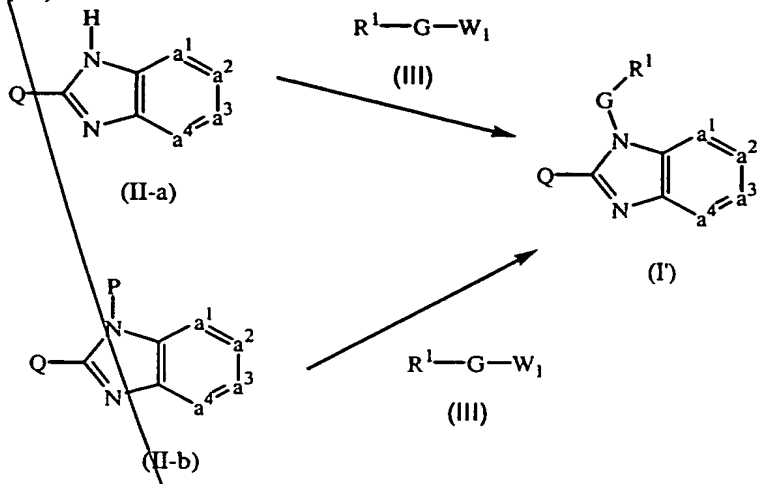
12. Use of a compound according to claim 1 or 11 wherein said viral infection is a respiratory syncytial virus infection.

13. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and as active ingredient a therapeutically effective amount of a compound as claimed in claim 2 or claim 9.

14. A process of preparing a composition as claimed in claim 13 characterized in that a pharmaceutically acceptable carrier is intimately mixed with a therapeutically effective amount of a compound as claimed in claim 2 or claim 9.

15. A process of preparing a compound as claimed in claim 2, characterized by

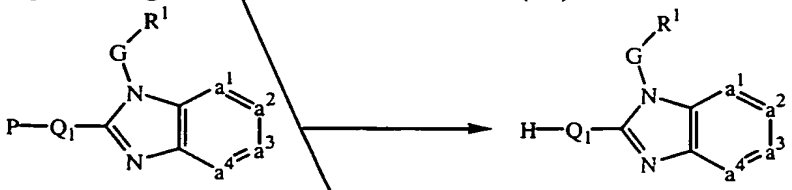
a) reacting an intermediate of formula (II-a) or (II-b) with an intermediate of formula (III)



(II-a) (III) (I') (II-b) (III)

with R^1, G, Q and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and W_1 being a suitable leaving group, in the presence of a suitable base and in a suitable reaction-inert solvent;

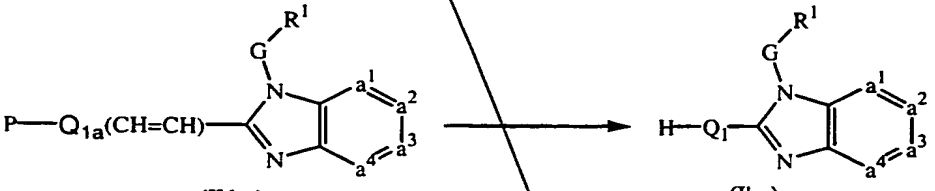
b) deprotecting an intermediate of formula (IV)



(IV) (I'-a)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, H-Q_1 being defined as Q according to claim 2 provided that R^2 or at least one R^6 substituent is hydrogen, and P being a protective group;

c) deprotecting and reducing an intermediate of formula (IV-a)

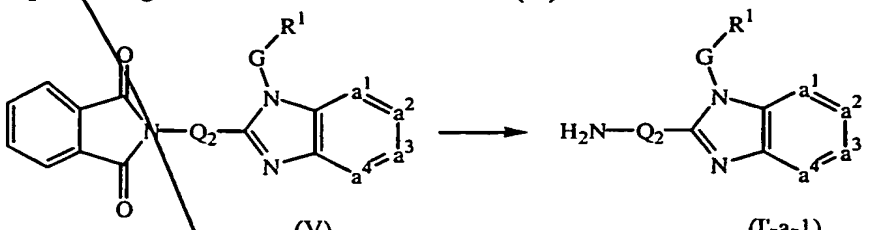


(IV-a) (I'-a)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, H-Q_1 being defined as Q according to claim 2 provided that R^2 or at least one R^6 substituent is hydrogen,

Q_{1a}(CH=CH) being defined as Q_1 provided that Q_1 comprises an unsaturated bond, and P being a protective group

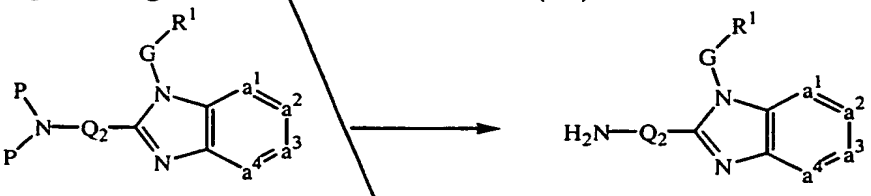
d) deprotecting an intermediate of formula (V)



(V) (I'-a-1)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and H_2N-Q_2 being defined as Q according to claim 2 provided that both R^6 substituents are hydrogen or R^2 and R^4 are both hydrogen;

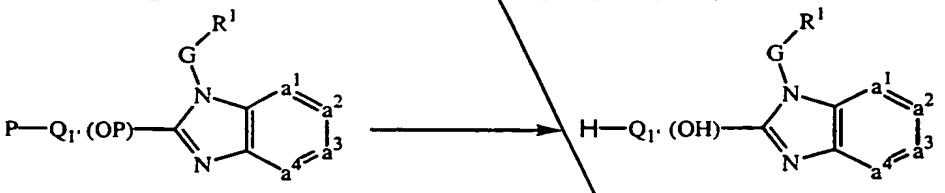
e) deprotecting an intermediate of formula (VI)



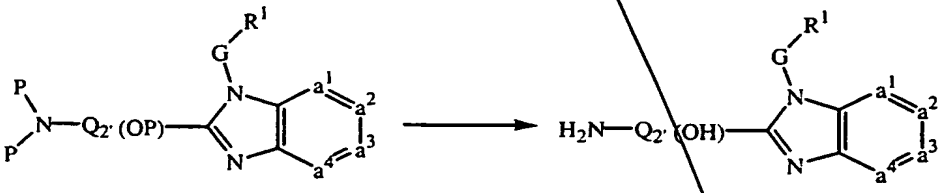
(VI) (I'-a-1)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and H_2N-Q_2 being defined as Q according to claim 2 provided that both R^6 substituents are hydrogen or R^2 and R^4 are both hydrogen, and P being a protective group;

f) deprotecting an intermediate of formula (VII) or (VIII)



(VII) (I'-a-2)

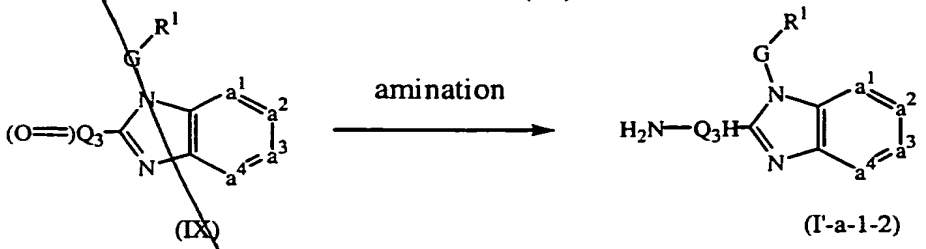


(VIII) (I'-a-1-1)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, $H-Q_1\cdot(OH)$ being defined as Q according to claim 2 provided that R^2 or at least one R^6 substituent is hydrogen and provided that Q comprises a hydroxy moiety, $H_2N-Q_2\cdot(OH)$ being defined as Q

according to claim 2 provided that both R^6 substituents are hydrogen or R^2 and R^4 are both hydrogen and provided that Q comprises a hydroxy moiety, and P being a protective group;

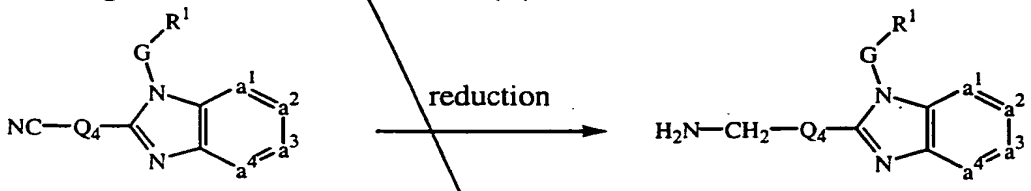
g) amination of an intermediate of formula (IX)



(IX) (I'-a-1-2)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and H_2N-Q_3H being defined as Q according to claim 2 provided that both R^6 substituents are hydrogen or R^2 and R^4 are both hydrogen, and the carbon adjacent to the nitrogen carrying the R^6, or R^2 and R^4 substituents contains at least one hydrogen, in the presence of a suitable amination reagent;

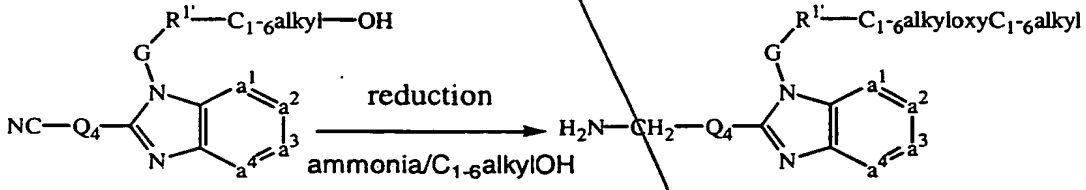
h) reducing an intermediate of formula (X)



(X) (I'-a-1-3)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and $H_2N-CH_2-Q_4$ being defined as Q according to claim 2 provided that Q comprises a $-CH_2-NH_2$ moiety, in the presence of a suitable reducing agent;

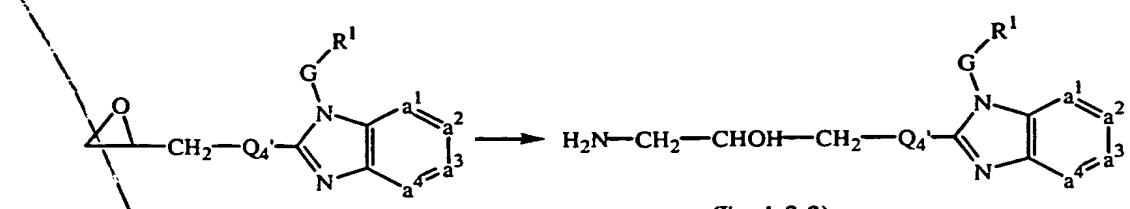
i) reducing an intermediate of formula (X-a)



(X-a) (I'-a-1-3-1)

with G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, $H_2N-CH_2-Q_4$ being defined as Q according to claim 2 provided that Q comprises a $-CH_2-NH_2$ moiety, and $R^{1'}$ being defined as R^1 according to claim 2 provided that it comprises at least one substituent, in the presence of a suitable reducing agent and suitable solvent;

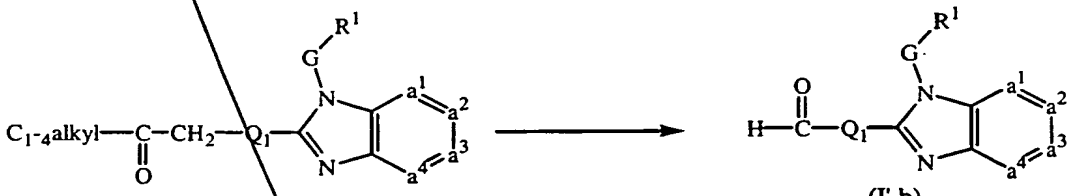
j) amination of an intermediate of formula (XI)



(XI) (I'-a-1-3-2)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and $H_2N-CH_2-CHOH-CH_2-Q_4$ being defined as Q according to claim 2 provided that Q comprises a $CH_2-CHOH-CH_2-NH_2$ moiety, in the presence of a suitable amination reagent;

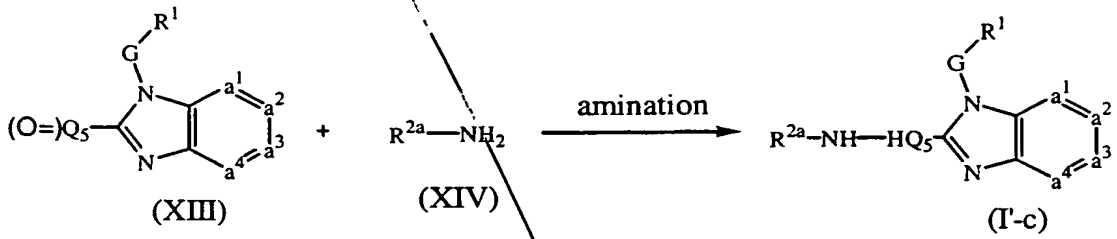
k) reacting an intermediate of formula (XII) with formic acid, formamide and ammonia



(XII) (I'-b)

with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and $H-C(=O)-Q_1$ being defined as Q according to claim 2 provided that R^2 or at least one R^6 substituent is formyl;

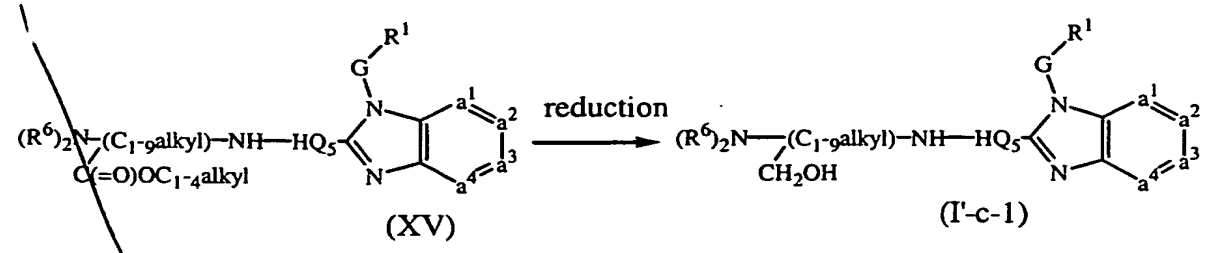
l) amination of an intermediate of formula (XIII) by reaction with an intermediate of formula (XIV)



(XIII) (XIV) (I'-c)

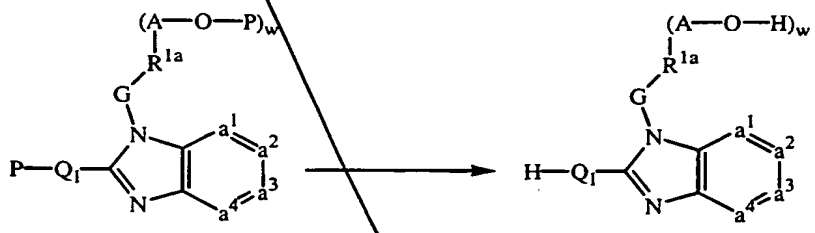
with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and $R^{2a}-NH-HQ_5$ being defined as Q according to claim 2 provided that R^2 is other than hydrogen and is represented by R^{2a}, R^4 is hydrogen, and the carbon atom adjacent to the nitrogen atom carrying the R^2 and R^4 substituents, carries also at least one hydrogen atom, in the presence of a suitable reducing agent;

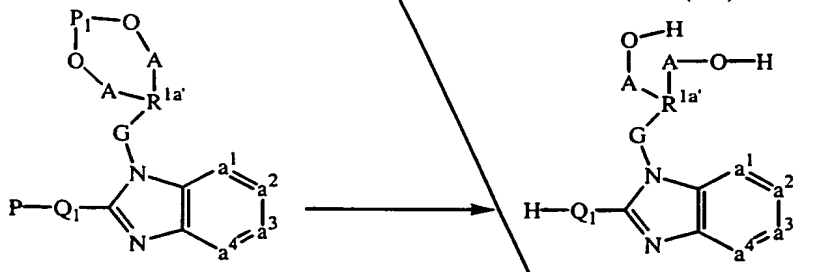
m) reducing an intermediate of formula (XV)

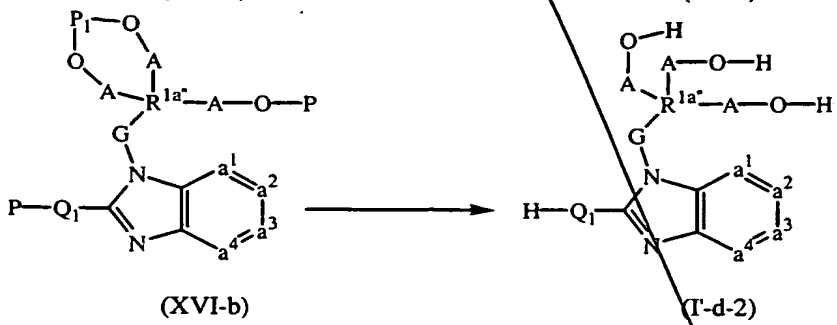


with R^1, G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and $(R^6)_2N$-[$(C_{1-9}$alkyl$)CH_2OH$]-NH-HQ_5 being defined as Q according to claim 2 provided that R^2 is other than hydrogen and is represented by C_{1-10}alkyl substituted with $N(R_6)_2$ and with hydroxy, and the carbon atom carrying the hydroxy, carries also two hydrogen atoms, and provided that R^4 is hydrogen, and the carbon atom adjacent to the nitrogen atom carrying the R^2 and R^4 substituents, carries also at least one hydrogen atom, with a suitable reducing agent;

n) deprotecting an intermediate of formula (XVI), (XVI-a) or (XVI-b)



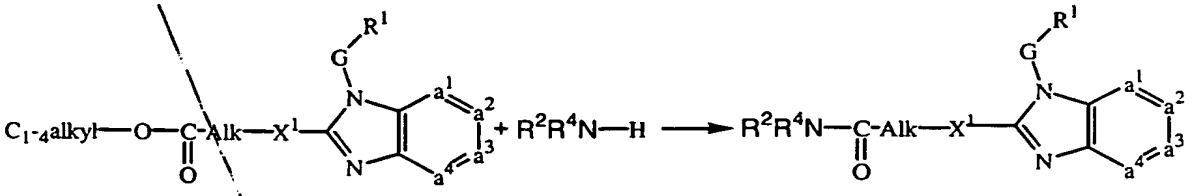




with G, and $-a^1=a^2-a^3=a^4-$ defined as in claim 2, and H-Q_1 being defined as Q according to claim 2 provided that R^2 or at least one R^6 substituent is hydrogen,

and R^{1a}-(A-O-H)$_w$, $R^{1a'}$-(A-O-H)$_2$ and $R^{1a''}$-(A-O-H)$_3$ being defined as R^1 according to claim 2 provided that R^1 is substituted with hydroxy, hydroxyC_{1-6}alkyl, or HO(-CH_2-CH_2-O)$_n$-, with w being an integer from 1 to 4 and P or P_1 being a suitable protecting group, with a suitable acid.

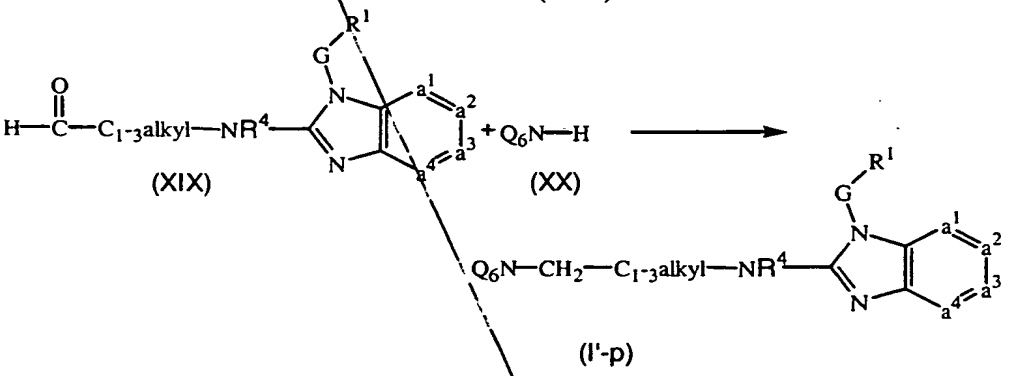
o) amination of an intermediate of formula (XVII)



(XVII) (XVIII) (I'-e)

with R^1, G, -a^1=a^2-a^3=a^4-, Alk, X^1 R^2 and R^4 defined as in claim 2, in the presence of a suitable amination agent;

p) amination of an intermediate of formula (XIX)



(XIX) (XX) (I'-p)

with R^1, G, and -a^1=a^2-a^3=a^4- defined as in claim 2, and Q_6N-CH_2-C_{1-3}alkyl-NR^4 being defined as Q according to claim 2 provided that in the definition of Q, X^2 is C_{2-4}alkyl-NR^4, in the presence of a suitable amination agent;

and, if desired, converting compounds of formula (I') into each other following art-known transformations, and further, if desired, converting the compounds of formula (I'), into a therapeutically active non-toxic acid addition salt by treatment with an acid, or into a therapeutically active non-toxic base addition salt by treatment with a base, or conversely, converting the acid addition salt form into the free base by treatment with alkali, or converting the base addition salt into the free acid by treatment with acid; and, if desired, preparing stereochemically isomeric forms, metal complexes, quaternary amines or *N*-oxide forms thereof.

SUB A1

16. A product containing (a) a compound as defined in claim 2 or 9, and (b) another antiviral compound, as a combined preparation for simultaneous, separate or sequential use in the treatment or the prevention of viral infections.

17. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and as active ingredients (a) a compound as defined in claim 2 or 9, and (b) another antiviral compound.

add A2

add B2

add C1